

# Instructional Materials Evaluation Criteria – First Grade Mathematics

**Title** \_\_\_\_\_ **ISBN#** \_\_\_\_\_

**Established Track Record?** YES ☐ NO ☐

If yes, please list research source(s):

**Meets National Mathematics Standards?** YES ☐ NO ☐

**Standard 1: Students will acquire number sense and perform simple operations with whole numbers.**

| Objectives   | Indicators  | Covered?<br>Yes | Covered?<br>No | Explanation of Coverage | Percentage<br>of<br>Coverage |
|--|---|-----------------|----------------|-------------------------|------------------------------|
| <b>Objective 1.1:<br/>Represent and use whole numbers up to 100.</b>                   | a. Count, read, and write whole numbers.  |                 |                |                         |                              |
|  | b. Represent whole numbers using models, diagrams, and number sentences.  |                 |                |                         |                              |
|  | c. Represent whole numbers greater than 10 in groups of tens and ones using objects, pictures, and expanded notation.                   |                 |                |                         |                              |
| <b>Objective 1.2:<br/>Identify simple relationships among whole numbers up to 100.</b> | a. Compare and order sets of objects and numbers using the terms greater than, less than, and equal to when describing the comparisons. |                 |                |                         |                              |
|  | b. Make reasonable estimates of the quantitative difference between two sets of objects.  |                 |                |                         |                              |
|  | c. Identify one more, one less, 10 more, and 10 less than a given number.   |                 |                |                         |                              |
|  | d. Identify numbers missing from a counting sequence.   |                 |                |                         |                              |
| <b>Objective 1.3:<br/>Model, describe, and</b>   | a. Use a variety of models, including objects, length-based   |                 |                |                         |                              |

| illustrate the meanings of addition and subtraction and use these operations to solve problems.  | models, and number lines, to model part-whole, adding to, taking away from, and comparing situations and demonstrate the meaning of addition and subtraction.             |                 |                |                         |                              |
|--|---|-----------------|----------------|-------------------------|------------------------------|
|  | b. Use the properties of addition (i.e., commutativity, associativity, identity element) and the inverse relationship between addition and subtraction to solve problems. |                 |                |                         |                              |
|  | c. Compute basic addition facts (up to $10 + 10$ ) and the related subtraction facts.   |                 |                |                         |                              |
|  | d. Find the sum of three one-digit numbers.   |                 |                |                         |                              |
| <b>Standard 2: Students will identify and use number patterns and properties to describe and represent mathematical relationships.</b> |   |                 |                |                         |                              |
| Objectives   | Indicators  | Covered?<br>Yes | Covered?<br>No | Explanation of Coverage | Percentage<br>of<br>Coverage |
| <b>Objective 2.1:</b><br>Recognize, describe, and represent patterns with more than one attribute.                                     | a. Sort and classify objects using more than one attribute.   |                 |                |                         |                              |
|  | b. Identify, create, and label repeating patterns using objects, pictures, and symbolic notation.   |                 |                |                         |                              |
|  | c. Identify, create, and label growing patterns using objects, pictures, and symbolic notation.   |                 |                |                         |                              |
|  | d. Use patterns to establish skip counting by twos, fives, and tens.  |                 |                |                         |                              |
| <b>Objective 2.2:</b><br>Recognize and represent mathematical relationships using symbols and use                                      | a. Recognize that “=” indicates a relationship in which the quantities on each side are of equal value.   |                 |                |                         |                              |

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| number sentences with operational symbols to solve problems. | b. Recognize that “+” indicates the joining of sets and that “-“ indicates the separation of sets.   |  |  |  |  |
|  | c. Write and solve number sentences from problem situation involving addition and subtraction using symbolic notation for the missing value (e.g., $\Delta + 4 = 7$ ). |  |  |  |  |
|  | d. Create problem situations from given number sentences involving addition and subtraction.   |  |  |  |  |

**Standard 3: Students will understand simple geometry and measurement concepts as well as collect, represent, and draw conclusions from data.**

| Objectives  | Indicators  | Covered?<br>Yes | Covered<br>?<br>No | Explanation of Coverage | Percentage<br>of<br>Coverage |
|---|---|-----------------|--------------------|-------------------------|------------------------------|
| <b>Objective 3.1:</b><br>Identify, describe, and create simple geometric figures. | a. Name, create, and sort geometric plane figures (i.e., circle, triangle, rectangle, square, trapezoid, rhombus, parallelogram, hexagon).  |                 |                    |                         |                              |
|   | b. Identify geometric plane and solid figures (i.e., circle, triangle, rectangle, square, trapezoid, hexagon, rhombus, parallelogram, cube, sphere, cone) in the students’ environment. |                 |                    |                         |                              |

|  |   |  |  |  |  |
|--|---|--|--|--|--|
|  | c. Compose and decompose plane and solid figures (e.g., make two triangles from a square) and describe the part-whole relationships, the attributes of the figures, and how they are different and similar. |  |  |  |  |
| <b>Objective 3.2.<br/>Identify measurable attributes of objects and units of measurement and use appropriate techniques and tools to determine measurements.</b> | a. Identify the appropriate tools measuring length, weight, capacity, temperature, and time.  |  |  |  |  |
|  | b. Measure the length of an object using nonstandard units and count the units using groups of tens and ones.   |  |  |  |  |
|  | c. Identify the value of a penny, nickel, dime, quarter, and dollar and determine the value of a set of the same coins that total 25¢ or less (e.g., a set of 5 nickels equals 25¢).                        |  |  |  |  |
|  | d. Tell time to the hour and half-hour.   |  |  |  |  |
|  | e. Name the months of the year and seasons in order and use a calendar to determine the day of the week and date.   |  |  |  |  |
| <b>Objective 3.3:<br/>Collect, organize, and represent simple data.</b>  | a. Collect and represent data using tables, tally marks, pictographs, and bar graphs.   |  |  |  |  |
|  | b. Describe and interpret data.   |  |  |  |  |

| Curriculum Coverage                 | 3   | 2   | 1  | 0  | N/A |
|-------------------------------------|---|---|--|--|-----|
| Meets Core Standards and Objectives | 80% of the state core objectives are covered.<br><br>Objectives in instructional materials are clearly stated with measurable outcomes.   | 70% of the state core objectives are covered.<br><br>Objectives in instructional materials are clearly stated with measurable outcomes.   | 50% of the state core objectives are covered.  | Less than half of the state core objectives are covered.   |     |
| Content                             | Accurate information reflecting current mathematical knowledge.<br><br>No content bias.   | Some inaccuracies found, however information reflects current mathematical knowledge.<br><br>No content bias.   | Many inaccuracies were found on major mathematical concepts or content bias created problems with mathematical concepts.   | Major inaccuracies found in mathematical content or concepts.  |     |
| Covers Process Skills               | Materials support and encourage students to use mathematical process skills (i.e., problem solving, communication, reasoning, and proof, connections, representation).  | Materials provide a range of activities with set outcomes.<br><br>Process skills are mentioned but not incorporated into instructional process.                                       | Materials provide a set of explicit step-by-step instructions.<br><br>Limited amount of process skills mentioned.  | No hands-on activities.<br><br>No process skills mentioned.  |     |
| Age Appropriate                     | A wide range of activities to accommodate various developmental levels at a reasonable pace and depth of coverage.<br><br>Includes age appropriate cross-curricular references (e.g., literature, software, etc.)<br><br>Content organized so prerequisite skills and knowledge are developed before more complex skills. | Some activities are adaptable to the appropriate age level.<br><br>Some cross-curricular activities are given.<br><br>Some attention given to prerequisite skills and knowledge.      | Limited developmentally appropriate activities.<br><br>Prerequisite skills and prior knowledge are not sufficiently developed before more complex concepts are introduced. | Age appropriate issues are not addressed.<br><br>Several activities are not based on appropriate levels. |     |
| Pedagogically Sound                 | Facilitates a wide range of teacher and student activities that reflect various learning styles and individual needs of students.<br><br>Includes a wide variety of pedagogical strategies for flexible grouping and instruction.   | Encourages and assists teachers in addressing learning styles and individual needs of students.<br><br>Includes various pedagogical strategies for flexible grouping and instruction. | Addresses differences in learning and teaching to a limited degree.<br><br>Includes some pedagogical strategies for flexible grouping and instruction.                     | Hinders effective pedagogy.  |     |

| <b>Physical Qualities</b>                          | <b>3</b>  | <b>2</b>   | <b>1</b>  | <b>0</b>   | <b>N/A</b> |
|--|---|--|---|--|------------|
| Durability   | Materials are securely bound and reinforced.  | Materials are hardbound adequately.  | Materials have secure binding.  | Materials have inferior binding.   |            |
| Print Size and legibility for intended grade level | Appropriate use of font size and format for intended grade level.   | Font size adequate for intended grade level.   | Font size and format too small or too large for age group.  | Font size inconsistent.  |            |
|  | Key words or phrases bold faced and/or italicized.  | Some key words or phrases boldfaced and/or italicized.   | Highlighting was used too much, emphasized too much information.  | No key words or phrases boldfaced or italicized.   |            |
| Pictures, tables, and graphics                     | Appropriate and varied pictures, tables, and graphs.<br><br>Graphs and tables are correctly labeled (e.g., titles, keys, labels).   | Limited pictures, tables, and graphs.<br><br>Some tables and graphs are not labeled correctly.   | Very limited pictures, tables, and graphs.  | Inappropriate pictures, tables, and graphs.  |            |
| Includes table of content, glossaries, and index   | Tables of contents, indices, glossaries, content summaries, and assessment guides are designed to help teachers, parents/guardians, and students.<br><br>Clearly represents concepts within the text. | Tables of contents, indices, glossaries, content summaries, and assessment guides are designed to help teachers, parents/guardians, and students, are adequate but not clearly defined concepts within the text. | Simple tables of contents, indices, glossaries, content summaries, and assessment guides are included.                    | Is missing one or more of the following: simple table of contents, glossaries, content summaries, assessment guides, or indices. |            |
| <b>Ancillary Materials</b>                         | <b>3</b>  | <b>2</b>   | <b>1</b>  | <b>0</b>   | <b>N/A</b> |
| Teacher Materials                                  | Lesson plans are easy to understand and implement.<br><br>Are clearly written and presented with accurate concepts.   | Most lesson plans are easy to understand and implement.<br><br>Are clearly written and presented with accurate concepts.   | Lesson plans are difficult to understand.   | No lesson plans.   |            |
|  | Mathematical terms and academic vocabulary are appropriately used.  | Generally mathematical terms and academic vocabulary are appropriately used.   | Some mathematical terms and academic vocabulary are appropriately used.   | There is a lack of mathematical terms and academic vocabulary.   |            |
|  | Incorporates integration suggestions to other curriculum areas.   | Most integration supports other curricular areas.  | Some integration support for other curricular areas.  | No integration support available.  |            |
|  | Investigations and problem solving activities focus on demonstrating mathematical principles in the content area.   | Most investigations and problem solving activities focus on demonstrating mathematical principles in the content area.   | Limited investigations and problem solving activities focus on demonstrating mathematical principles in the content area. | Investigations and problem solving activities are not related to content area or no investigation activities.                    |            |

| <b>Ancillary Materials cont.</b> | <b>3</b>   | <b>2</b>  | <b>1</b>   | <b>0</b>  | <b>N/A</b> |
|----------------------------------|--|---|--|---|------------|
| Student Materials                | Activities engage students in purposeful mathematics.  | Most activities engage students in purposeful mathematics.  | Some activities engage students in purposeful mathematics.   | Activities do not develop the concept studied.                                    |            |
|                                  | Activities incorporate use of process skills (i.e., problem solving, communication, reasoning and proof, connections, representation) for deep understanding of mathematical principles. | Activities encourage the use of process skills for deep understanding of mathematical principles. | Activities mention the use of process skills for deep understanding of mathematical principals.                          | Activities do not encourage process skills for deep understanding of mathematics. |            |
|                                  | Includes ideas to extend concepts in real world applications.  | Some ideas are included to extend concepts in real world applications.                            | Limited real world applications.   | No real world applications suggested.   |            |
| Parent Materials                 | Homework assignments and activities support classroom learning and are written so that parents/guardians can help their children.  | Suggested strategies and activities to assist parents/guardians.                                  | Limited activities available for parent/guardian use.  | No parent/guardians activities included.  |            |
|                                  | ESL strategies and activities that support classroom learning are provided in materials sent home to parents.  | Some ESL strategies and activities are provided in materials sent home to parents.                | A few ESL strategies and activities that may be sent home to parents are provided.                                       | No ESL strategies and activities are provided.                                    |            |
| Manipulatives                    | Manipulatives are provided and are appropriate.  | Manipulatives are provided.   | Manipulatives are not provided.  | Manipulatives are not part of the program.  |            |
|                                  | Manipulatives can be replaced economically and locally.  | Manipulatives can be replaced locally or by mail order.   | Needed manipulatives can be obtained locally or special ordered.   |   |            |
| <b>Technology (teachers)</b>     | <b>3</b>   | <b>2</b>  | <b>1</b>   | <b>0</b>  | <b>N/A</b> |
| Ease of Use                      | Menus are easy to read and follow.   | Menus are generally easy to read and follow.  | Menus are easy to read. Might have to read manual to understand operation of technology. (e.g., laser remote, software.) | Menus are not very descriptive. Hard to follow.                                   |            |
|                                  | User-friendly installation requires a minimal level of computer expertise.   | Installation requires little computer expertise.  | Installation requires some knowledge or expertise.   | Installation requires expertise.  |            |
|                                  | Manual and directions are understandable.  | Manuals and directions are simple.  | Manuals are included.  | No manuals or written instructional materials are provided.                       |            |

| <b>Technology (teachers) cont.</b>             | <b>3</b>   | <b>2</b>   | <b>1</b>  | <b>0</b>   | <b>N/A</b> |
|--|--|--|---|--|------------|
| Audio/Visual attributes                        | High quality audio and visuals are correct and contribute to overall effectiveness of program.   | Audio and visuals are of good quality. Complements program effectiveness.          | Audio and visuals are acceptable. Aligned with program content. | Audio and visual defects are apparent. Distracts from program content. |            |
|  | Information is current and up-to-date.   | Information is current.  | Information is mostly current.                                  | Information is out-of-date.  |            |
| Enhances learning experience                   | Enhances learning experience. Adds depth and diversity.  | Offers some additional depth and diversity to learning experience.                 | Mild impact to overall learning experience.                     | Does not impact learning experience.                                   |            |
| <b>Technology (students)</b>                   | <b>3</b>   | <b>2</b>   | <b>1</b>  | <b>0</b>   | <b>N/A</b> |
| Calculator                                     | Appropriate activities and materials are provided to explore and prove conjectures.  | Activities help students learn use to use calculator to explore concepts           | Activities to learn to use calculators                          | No use of calculators or calculators used to check work only.          |            |
| Computer                                       | Software allows students to explore and prove mathematical conjectures   | Software allows students to explore math conjectures                               | Software demonstrates processes for mathematical applications   | Drill and practice only  |            |
| <b>Universal Access</b>                        | <b>3</b>   | <b>2</b>   | <b>1</b>  | <b>0</b>   | <b>N/A</b> |
| Content accurately reflects diverse population | Provides ways to adapt curriculum for all students (e.g., special needs, learning difficulties, English language learners, advanced learners.) | Provides some ways to adapt curriculum to meet assessed special needs.             | Provides limited strategies to assist special needs students.   | Inappropriate strategies to assist special needs students.             |            |
|  | Accurate portrayal of cultural, racial, and religious diversity in society.  | Mostly accurate portrayal of cultural, racial, and religious diversity in society. | Does not address diversity in society.                          | Inaccurate portrayal of diverse populations and society.               |            |
| <b>Assessment</b>                              | <b>3</b>   | <b>2</b>   | <b>1</b>  | <b>0</b>   | <b>N/A</b> |
| Provides a variety of assessment options       | Multiple measurements of individual student progress at regular intervals ensuring success of all students.                                    | Assessment requires students to apply some concepts.                               | Assessment requires students to apply few concepts.             | Provides only paper and pencil assessment.                             |            |



| <b>Assessment<br/>cont.</b>        | <b>3</b>   | <b>2</b>  | <b>1</b>   | <b>0</b>   | <b>N/A</b> |
|------------------------------------|--|---|--|--|------------|
| Assessment tools                   | Scoring tools and rubrics in assessment package.   | Some scoring tools and rubrics provided.                        | Very few assessment tools are provided.                        | Answer keys to paper and pencil assessments.                         |            |
| Assessment alignment to objectives | Assessment is provided to assess 80% of stated objectives with a variety of assessment strategies and items. | Assessment is provided to assess 70% of stated objectives.      | Assessment is provided to assess 50% of stated objectives.     | Assessment is provided to assess less than 50% of stated objectives. |            |
| Assessment for understanding       | Assessment requires the application of ideas and concepts.   | Assessment requires the application of some ideas and concepts. | Assessment requires the application of few ideas and concepts. | No application of ideas and concepts.                                |            |